



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/685,383	10/16/2003	Tomowaki Takahashi	116949	9783
25944	7590	07/27/2004	EXAMINER	
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			RUTLEDGE, DELLA J	
			ART UNIT	PAPER NUMBER
			2851	

DATE MAILED: 07/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/685,383

**Applicant(s)**

TAKAHASHI, TOMOWAKI

**Examiner**

D. Rutledge

**Art Unit**

2851

a

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-50 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,17,18,22,23,27-29,33-36,40-43 and 47-50 is/are rejected.
- 7) ☒ Claim(s) 3-16,19-21,24-26,30-32,37-39 and 44-46 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 10 & 12/03
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Specification***

2. The abstract of the disclosure is objected to because because of undue length. The abstract have no more than 150 words. Correction is required. See MPEP § 608.01(b).

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 2, 17, 18, 22, 23, 27 - 29, 33 – 36, 40 – 43, and 47 – 50 are rejected under 35 U.S.C. 102(b) as being anticipated by Hudyma (US 6,033,079).

Hudyma discloses a projection optical system for forming a reduced image on a first plane onto a second plane. The apparatus, in Fig. 5, exposes a mask to produce a reduced image onto a wafer, col.8, lines 1-7 using EUV radiation of 13.4 nm source, col. 6, lines 51-55, which is in the range of soft x-rays. The apparatus has a first reflective

Art Unit: 2851

image forming optical system comprising mirrors 1 – 4 and a second reflective image forming optical system comprising mirrors 5 and 6. The mirrors have a incidence angle of about 15°, col. 5, lines 36 and 46; there is an aperture stop at the second mirror, col. 7, lines 32 and 33; the mirrors are telecentric, (col. 7, lines 8-14); aspherical and 12<sup>th</sup> order, col.8, lines 38-42; rotational symmetrical, col. 8, lines 37-39; the mirrors have the particular concave or convex shape claimed, col. 6, lines 62-66.

5. Claims 1, 2, 17, 18, 22, 23, 27 - 29, 33 – 36, 40 – 43, and 47 – 50 are rejected under 35 U.S.C. 102(e) as being anticipated by Dinger (S 6,600,552).

Dinger has six mirrors in two reflective image forming systems, group 1, mirrors 1-4 and group 2, mirrors 5 and 6. The apparatus exposes a mask to produce a reduced image onto a wafer using EUV radiation of 13.4 nm source, col. 6, lines 63-66, which is in the range of soft x-rays. The apparatus has a first reflective image forming optical system comprising mirrors 1 – 4 and a second reflective image forming optical system comprising mirrors 5 and 6. The mirrors have a incidence angle less than 20°, col 7, lines 57-59; there is an aperture stop at the second mirror, col. 10, lines 35; the mirrors are telecentric about the optical axis, aspherical and of 10<sup>th</sup> order, rotationally symmetrical and the mirrors have the particular concave or convex shape claimed, see Figs. 2-7.

***Allowable Subject Matter***

6. Claims 3 – 16, 19-21, 24-26, 30-32, 37-39, and 44-46 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in

Art Unit: 2851

independent form including all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter: the prior art does not disclose the relationship of  $\Phi M/|R| < 1.0$ .

***Response Data***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to D. Rutledge whose telephone number is (571) 272-2127. The examiner can normally be reached on Mon - Thurs, 6:00 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on (571) 272-2258. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
D. Rutledge  
Primary Examiner  
Art Unit 2851

dr  
7/26/2004